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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/897,613	07/03/2001	Hidetoshi Honbo	503.34465VV4	1835

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EXAMINER	
MAPLES, JOHN S	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/897,613	HONBO ET AL.	
	Examiner	Art Unit	
	John S. Maples	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-15,17-21,24 and 32-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-15,17-21,24,32-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 13-15, 17-21, 24 and 32-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Takami et al. (Takami) (New Rejection with regard to claims 34-38)

Reference is made to column 2, lines 3-28 of Takami along with column 5, lines 50-64; column 12, lines 10-31; column 13, lines 59-column 14, line 43; column 16, lines 17-64 and Example 27. In these portions, and especially in columns 13 and 14, Takami discloses the hexagonal crystal structure of the graphite negative electrode and for the particle size thereof being in a range of less than 100 microns. As is well known in the art, there is at least a 3% amount of rhombohedral crystal structure present in the hexagonal graphite crystal negative electrode, which amount meet the claimed amount. In any event, applicant has used a lower range of 0% for the amount of rhombohedral crystal structure present in the anode graphite material in most of the claims and thus a teaching of crystal graphite anode material absent rhombohedral type structure would meet the claimed subject matter. In addition, it is inherent in the teachings of Takami that the capacity for the graphite crystal powder would be at least 320 mAh/g because this reference teaches the same material so that its capacity would be the same as set forth in the present application.

Applicant's arguments have all been considered but are not deemed persuasive. Applicant argues that the graphite in Takami is not of an orderly and regular hexagonal crystal structure. The examiner respectfully disagrees. More specifically, applicant argues that Takami

teaches a structure having crystallites and not crystals of the carbon material. Applicant further defines a difference between crystallites and a crystal according to Hawley's chemical dictionary. The applicant further states that Takami does not teach graphite powder having a crystal structure. It is noted that not all of applicant's claims require the entire anode carbon material to be of a crystal structure.

It is noted that Takami sets forth in multiple places in the document, a carbonaceous material for the anode in a lithium secondary battery having an exothermic peak and an intensity ratio of two different diffraction peaks obtained by X-ray diffraction analysis. See specifically, the abstract in Takami, column 3, lines 1-8, column 3, lines 56-60, column 6, lines 29-59, column 9, lines 14-28, column 10, lines 51-58, among many other portions in the patent. These values indicate a crystal structure for the entire anode material. A material would necessarily have to comprise an entire crystal structure to exhibit such analysis when undergoing X-ray diffraction procedures. It is noted that applicant acknowledges that such spectra exists for the carbon anode material in Takami as set forth on pages 13 and 14 of applicant's recent filing.

Applicant further mentions that Takami recites the carbon material having displacements, twists and angles of the nexagonal-net-plane layers, giving the size of the graphite structure. Applicant asserts, however, that Takami does not teach a graphite powder having the crystal structure with the recited particle size and the specified hexagonal and/or rhombohedral fraction of the crystal structure. Reference is made to the previous discussion of the Takami reference by the examiner setting forth the disclosure regarding the size of the graphite structure and the amounts of both the hexagonal and rhombohedral fractions of the crystal structure in the carbon anode material in Takami.

In addition, as set forth in Takami and outlined in applicants' response, the carbon material in Takami does include crystallites, however, in view of the many portions in Takami where the above peaks are delineated, Takami sets forth an entire crystal structure for the carbon anode material.

Applicant further argues that Takami does not have high crystallinity and has miniumu twisted structures unlike applicant's structure. This may be true, to some degree, however, applicant has not included claim language that covers these further limitations and thus applicant's arguments relating to these points are deemed moot.

It is noted that applicant has not argued either the assertion that all carbon crystal material includes at least 3% rhombohedral crystal structure and that because Takami sets forth the same carbon crystal material as applicant that it is inherent that the same would have the same capacity as applicant has claimed.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 13-15, 17-21, 24 and 32-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flandrois et al.-US 5,554,462 (Flandrois).

Reference is made to the Abstract in Flandrois along with column 1, lines 26-40; column 5, lines 6-13, Example 1 and Example 3. Flandrois sets forth a graphite anode material that includes both rhombohedral and hexagonal crystal structure in the claimed amounts. Table III sets forth the claimed capacity of the non-aqueous battery. The only claimed feature not shown or taught in Flandrois is the particle size of the graphite anode material being equal to or smaller than 100 microns. Example 3 of Flandrois sets forth graphite being ground in an impeller beaker for a minimum period of 15 minutes. It would have been obvious to one of ordinary skill in this art at the time the invention was made to have ground the graphite in Flandrois so that the size thereof would have been 100 microns or less because such size would allow the anode material to compact to a greater extent in the battery cell and produce the maximum amount of electrical output. It is also notoriously well known in the battery art to have the electrode powder be of this particle size.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Maples whose telephone number is 571-272-1287. The examiner can normally be reached on Monday-Friday from 6:15-3:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John S. Maples
Primary Examiner
Art Unit 1745

JSM/2-7-2005